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PLASMA TRIGLYCERIDES AND APOLIPOPROTEIN B LEVELS ARE NEGATIVELY CORRELATED TO FLOW MEDIATED VASODILATION

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Objectives

The study aimed to determine flow mediated vasodilation (FMD), and correlate it to plasma lipids and lipoproteins. FMD was taken as a measure of endothelial function.

Methods

Fourty healthy subjects (20 women (10 premenopausal, 10 postmenopausal) and 20 men) were included. Mean age of the premenopausal women was 40 years (range 26 to 51), postmenopausal women 58 years (range 54 to 66) and men 48 (range 24 to 62). The subjects were examined on two occasions, one month apart (same period of menstrual cycle in premenopausal women) in order to reduce variability. Blood samples were drawn after 10 hours of fasting and frozen at -80°C until analysis in the same analytical run.

FMD was determined after 15 minutes of rest with B-mode ultrasound of the right brachial artery after ischaemia (induced by a cuff inflated to 300 mmHg) for 5 min. Brachial artery FMD was calculated as a change in diameter from baseline to 60 seconds after cuff deflation expressed as a percentage increase from baseline. Average values of the measurements one month apart were read by the same experienced and blinded observer and used for calculation.

Serum lipids and lipoproteins were measured by standard methods in the laboratory with LDL-cholesterol calculated by the Friedwald formula.

Statistical methods

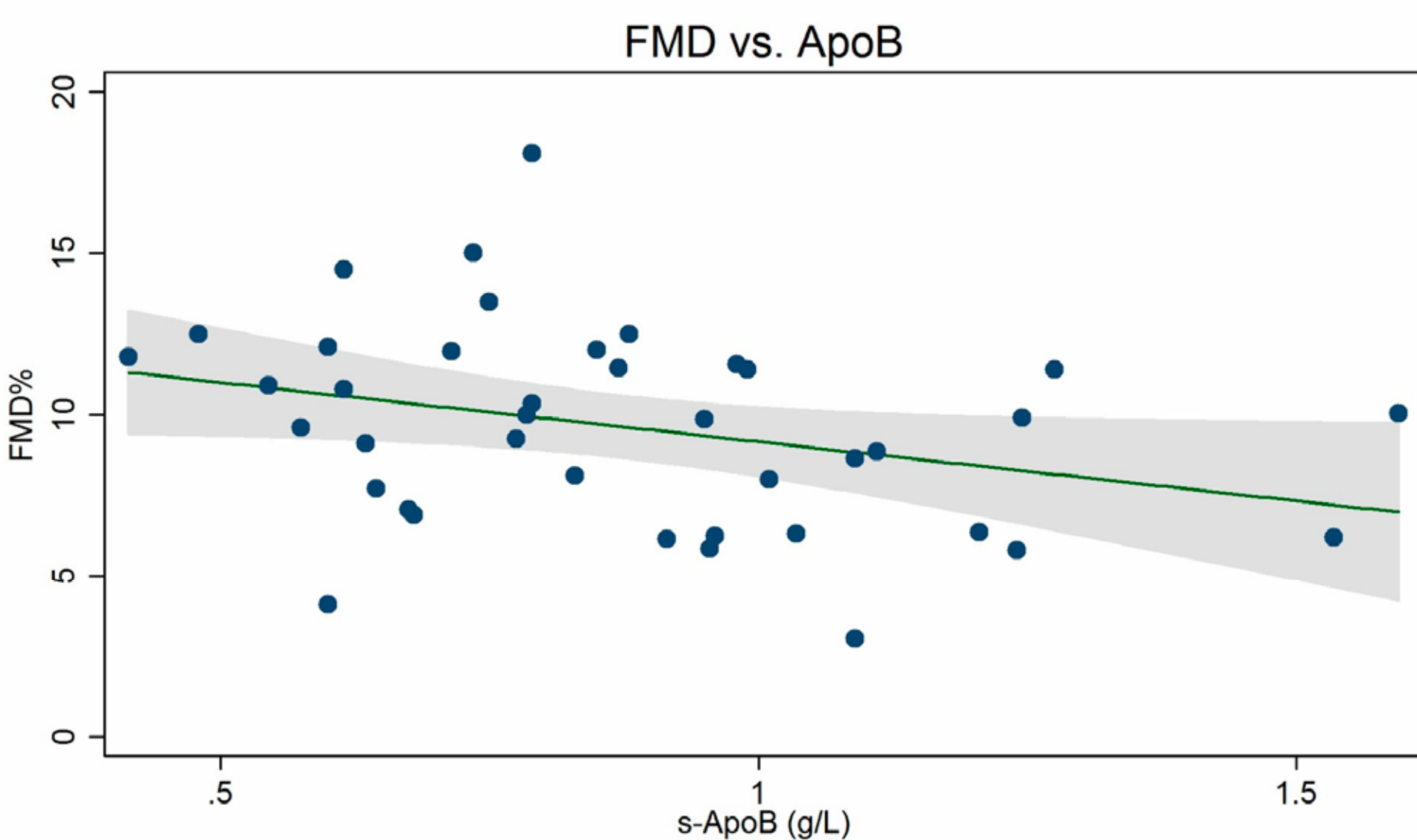
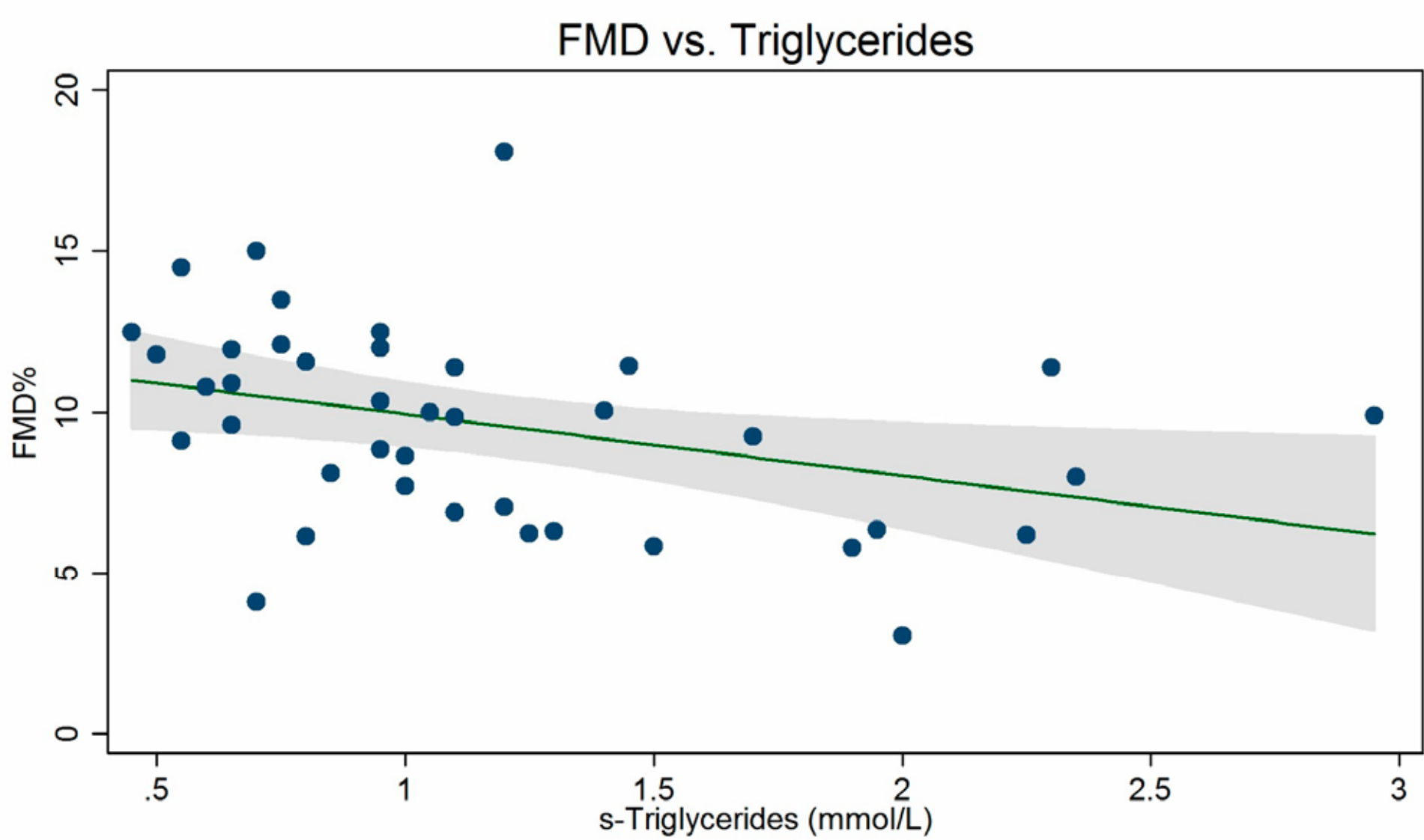
Pearson's correlation coefficient was used as a measure of association between FMD% and the serum lipids and lipoproteins. In the figures, the regression line with associated 95% confidence bands illustrate the linear relationship between FMD% and ApoB and triglycerides.

Results

The sample mean and 95%CI of FMD in the population was 9.6% [8.6;10.6].

	Mean [95% CI]	Pearson correlation with FMD% [95% CI]	p-value
Total Cholesterol	5.2 [4.8;5.6]	-0.26 [-0.53;0.05]	0.10
HDL Cholesterol	1.4 [1.3;1.5]	0.20 [-0.12;0.48]	0.23
LDL Cholesterol	3.2 [2.9;3.6]	-0.26 [-0.53;0.06]	0.11
Triglycerides	1.2 [1.0;1.4]	-0.36 [-0.61;-0.06]	0.02
ApoB	0.9 [0.8;1.0]	-0.32 [-0.57;-0.01]	0.04
Lp(a)	344 [192;497]	-0.01 [-0.32;0.31]	0.97

Serum lipids and lipoproteins were measured in mmol/L except for Lp(a) measured in IU/L and ApoB measured in g/L.



Conclusion

There were significant negative correlations of FMD to triglycerides and ApoB. The study therefore suggests that plasma triglycerides and ApoB levels are correlated with impaired endothelial function in healthy subjects.

